

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Appeals and Interferences

In re the Application of

Inventors: Hiroaki SUDO

Appln No.: 10/500,721

Filed: July 6, 2004

For: CODE DIVISION MULTIPLE ACCESS TRANSMITTING APPARATUS
HAVING PLURAL SPREADING SECTIONS THAT PERFORM SPREADING
PROCESSING SEPARATELY FOR A RETRANSMISSION SIGNAL USING
DIFFERENT SPREADING CODES

APPEAL BRIEF

On Appeal From Art Unit 2617
Examiner Christopher Brandt
Confirmation No. 6718

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I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, Panasonic Corporation of Osaka, Japan.

II. RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences, or judicial proceedings known to Appellant, Appellant's legal representative, or the assignee that may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-14 have been presented for examination. Claims 1-13 have been canceled. Claim 14 stands finally rejected and forms the subject matter of the present appeal.

IV. STATUS OF AMENDMENTS

No claim amendments were submitted after the mailing of the Final Rejection dated October 1, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

An object of the present claimed invention is to reduce communication retransmissions without significant degradation of the communication error rate (see specification page 3, lines 9-13).

To achieve this and other objects of the invention, independent claim 14 defines a code division multiple access (CDMA) transmitting apparatus 100 having a plurality of spreading sections 103-106 that perform spreading processing separately for transmission signals comprising a retransmission signal, using different spreading codes (see Fig. 2 and page 5, lines 4-21, of the specification). A multiplexing section 108 multiplexes the retransmission signal

spread by the plurality of spreading 103-106 sections based on a set degree of multiplexing and further multiplexes the signals other than the retransmission signal spread by the plurality of spreading sections 103-106 (see page 5, line 22, through page 6, line 6). A transmitting section 110 transmits the signals multiplexed by the multiplexing section 108 (see page 6, lines 7-11). A control section 102, 107, 109 detects a number of retransmissions for the retransmission signal and increases a ratio of the set degree of multiplexing to a degree of multiplexing for the signals other than the retransmission signal spread by the plurality of spreading sections 103-106 as the detected number of retransmissions increases (see page 5, lines 8-21, and page 6, lines 23-28).

The references herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claim 14 stands properly rejected, under 35 USC §103(a), as being unpatentable over the individual or combined teachings of Yamada et al. (US 2001/0014091) in view of Takahashi et al. (US 5,881,099) and Okamoto (US 6,266,360).

VII. ARGUMENT

A. Applicable Law

To establish a *prima facie* case of obviousness, all claim limitations must be taught or suggested by the prior art. *MPEP* §2143.03, *first sentence*; *In re Royka*, 490 F.2d 981, 984-985, 180 USPQ 580, 583 (CCPA 1974). Rejections on obviousness cannot be sustained by mere conclusory statements. Instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. See *KSR International v. Teleflex*

Inc., U.S. Supreme Court No. 04-1350 (2007) In re Kahn, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) and see MPEP §2143.01(I), first sentence of third paragraph.

As stated in *KSR*, exemplary rationales that may support a conclusion of obviousness include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) "Obvious to try" - choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. See *MPEP § 2143*.

B. Rejection of Claim 14

Claim 14 defines a CDMA transmitting apparatus that increases, within a multiplex signal, the ratio of the degree of multiplexing that is applied to a retransmission signal relative to

the degree of multiplexing applied to signals other than the retransmission signal, as the number of retransmissions increases. The claimed subject matter supports improving the likelihood of receiving a retransmission signal correctly as the number of retransmissions increases, without significantly affecting the transmission efficiency of the communication (see specification page 3, line 20, through page 4, line 1).

The Final Rejection acknowledges that Yamada and Takahashi do not disclose this subject matter but proposes that Okamoto does (see Final Rejection page 5, second paragraph). More specifically, the Final Rejection proposes that Okamoto discloses decreasing the number of multiplexed data as the number of negative acknowledgment (NAK) signals increases, so as to reduce the error rate of transmissions (see Final Rejection page 5, last two sentences of third paragraph). For the reasons set forth below, Okamoto's disclosure of decreasing the degree of multiplexing applied to a signal is not the same as, or similar to, the claimed subject matter of increasing, within a multiplex signal, the ratio of the degree of multiplexing that is applied to a retransmission signal relative to the degree of multiplexing applied to signals other than the retransmission signal, as the number of retransmissions increases.

Consider a situation in which the claimed apparatus applies two spreading codes to retransmission data and applies eight spreading codes to data other than the retransmission data to generate a first multiplex signal of a first retransmission. If a subsequent retransmission is made, the claimed subject matter may apply four spreading codes to retransmission data and six spreading codes to data other than the retransmission data in a second multiplex signal. Thus, as the number of retransmissions increases, the claimed subject matter increases the ratio of multiplexing applied to retransmission data relative to other data within a signal. Specifically, in

this example, the ratio of multiplexing for the retransmission data increases from one fourth (i.e., $2/8$) to two thirds (i.e., $4/6$) of the multiplexed data as the number of retransmissions increases.

Okamoto does not disclose varying a ratio of multiplexing retransmission data relative to other data within a signal as the number of retransmission increases. Instead, Okamoto discloses varying the total amount of multiplexing within a signal as the number of retransmissions increases. For example, if ten multiplexed signals are transmitted in a signal of a first retransmission, then Okamoto's system may reduce the total number of multiplexed signals transmitted in a subsequent retransmission to eight. Okamoto does not disclose what proportion of the data multiplexed within the first and second retransmissions is retransmission data and what proportion of the multiplexed data is data other than retransmission data, if any. Okamoto also does not indicate if the signal removed from the subsequent retransmission but communicated in the first transmission is a signal intended for retransmission data or data other than retransmission data. Thus, it necessarily follows that Okamoto cannot disclose increasing the ratio of the degree of multiplexing applied to retransmission data relative to other data within a signal, as proposed in the Final Rejection.

Appellant submitted remarks similar to the above remarks in a Response dated June 3, 2008. In reply to these remarks, the Final Rejection proposes that Okamoto: (1) discloses, in Figs. 4A and 6B, a communication signal comprising a non-multiplexed (i.e., simplex) data portion and a multiplexed data portion (see Final Rejection page 2, lines 7-11 of last paragraph) and (2) discloses decreasing the degree of multiplexing applied to a signal (see page 2, lines 5-6 of last paragraph). From these two points, the Final Rejection concludes that Okamoto discloses the Appellant's claimed subject matter of increasing, within a multiplex signal, the ratio of the

degree of multiplexing that is applied to a retransmission signal relative to the degree of multiplexing applied to signals other than the retransmission signal, as the number of retransmissions increases (see page 2, line 11, through page 3, line 3).

However, Okamoto discloses that the non-multiplexed (i.e., simplex) data is communicated prior to the communication of the multiplex data (see Okamoto col. 1, lines 49-60, col. 6, lines 11-19, col. 7, lines 10-18, and col. 9, lines 10-16). And by definition of the term multiplexing, it necessarily follows that non-multiplex data and multiplex data are not simultaneously communicated in a multiplexed signal. Thus, contrary to the inference asserted by the Final Rejection, Okamoto's disclosure of communicating simplex data in a separate communication from multiplex data does not alter the meaning of Okamoto's disclosure of decreasing the degree of multiplexing applied to a multiplex signal, as discussed above and in Appellant's Response of June 3, 2008.

Even if it were assumed, *arguendo*, that Okamoto's non-multiplex data and multiplex data could be simultaneously communicated in a multiplex signal, as apparently proposed in the Final Rejection, Okamoto's system would not achieve the Appellant's claimed subject matter for which it is cited. For example, if it were presumed that Okamoto's multiplex signal contains a single non-multiplex data signal and nine multiplexed data signals in a first transmission and a single non-multiplex data signal and eight multiplexed data signals in a subsequent transmission, Okamoto's disclosure of reducing the number of multiplexed signals does not achieve the Appellant's claimed subject matter of increasing, within a multiplex signal, the ratio of the degree of multiplexing that is applied to a retransmission signal relative to the degree of multiplexing applied to signals other than the retransmission signal, as the number of retransmissions

increases. In this particular example, the ratio of the degree of multiplexing of multiplexed data (i.e., retransmission data as disclosed by Okamoto in col. 1, lines 57-60, and col. 2, lines 16-20) to non-multiplex data (i.e., data other than retransmission data as apparently characterized in the Final Rejection) decreases from nine (i.e., 9/1) to eight (i.e., 8/1) in accordance with Okamoto's teaching of reducing the number of multiplex signals in subsequent retransmissions.

Accordingly, the Appellant respectfully submits that Yamada, Takahashi and Okamoto, considered individually or in combination, do not render obvious the subject matter defined by claim 14. Therefore, reversal of the rejection applied to claim 14 is warranted.

C. Conclusion

In view of the law and facts stated herein, it is respectfully submitted that the rejected claim defines patentable subject matter. Therefore, reversal of the outstanding ground of rejection is respectfully solicited.

Respectfully submitted,

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VIII. CLAIM APPENDIX

14. A code division multiple access transmitting apparatus comprising:

- a plurality of spreading sections that perform spreading processing separately for transmission signals comprising a retransmission signal, using different spreading codes;
- a multiplexing section that multiplexes the retransmission signal spread by the plurality of spreading sections based on a set degree of multiplexing and further multiplexes the signals other than the retransmission signal spread by the plurality of spreading sections;
- a transmitting section that transmits the signals multiplexed by the multiplexing section;
- and
- a control section that detects a number of retransmissions for the retransmission signal and increases a ratio of the set degree of multiplexing to a degree of multiplexing for the signals other than the retransmission signal spread by the plurality of spreading sections as the detected number of retransmissions increases.

IX. EVIDENCE APPENDIX

There is no evidence submitted pursuant to 37 CFR §§1.130, 1.131, or 1.132 of this title or any other evidence entered by the examiner and relied upon by Appellant in the appeal.

X. RELATED PROCEEDINGS APPENDIX

There are no decisions rendered by a court or the Board in any proceeding identified pursuant to 37 CFR §41.37(c)(1)(ii).